

CLAIMS

1. Packaging for cosmetic products, typically including a case (6) comprising a cover (8) provided with a first hinge portion (2), a recessed bottom (7) possibly including an intermediate support fixed to the said bottom and a receptacle in which the said cosmetic products will be placed, the said bottom (7) or the said mesh being provided with a second hinge portion (3), a hinge (1) with an axis of rotation R (10) formed by cooperation between the said first (2) and second (3) portions of the hinge, a means of locking and unlocking the said cover with respect to the said bottom or the said mesh, typically a clasp (9), and if possible an applicator of the said cosmetic product, characterized in that:
- 15 a) the said packaging comprises a said driving means (4) to open the said cover (8) at least partially,
  - b) in addition to the said "driving" means (4), the said packaging comprises an opposing "braking" means (5), the so-called driving means (4) and braking means  
20 (5) respectively applying a driving torque  $C_M = M(\alpha)$  and a braking torque  $C_F = F(\alpha)$  on the said cover, in opposite directions and with a predetermined force depending on the opening angle  $\alpha$  of the cover,
  - c) the said driving means (4) and the said braking  
25 means (5) cooperate with the said first hinge portion (2) and second hinge portion (3),

d) the said packaging comprises at least one clasp (9), typically comprising a pushbutton (90) located on a side part (61) of the said packaging, laterally offset from a central plane P (60) perpendicular to the said axis R, such that the said bottom (7) is typically gripped between the thumb and one finger of one hand, applying pressure on the said pushbutton (90) along a direction D (61) typically parallel to the said axis of rotation R (10), the said thumb and the said finger trigger the said opening of the cover without coming into contact particularly with the said hinge (3), and this without hindering opening of the said cover (8) under the action of the said driving means (4).

2. Packaging according to claim 1 in which the said driving torque  $C_M = CM(\alpha)$  and the braking torque  $C_F = F(\alpha)$  are chosen to obtain firstly the relation  $C_M \geq C_F$  for an opening angle  $\alpha$  varying from  $0^\circ$  to  $\alpha_0$ , the angle at which the said opposing torques are balanced, the said cover then tending to open under the action of the said driving torque, and secondly the relation  $C_M < C_F$  for an opening angle  $\alpha$  more than  $\alpha_0$ , possibly as far as a cover stop position, the said cover then having a resistance to opening or possibly tending to close again under the action of the braking torque, such that regardless of the opening angle  $\alpha$  of the cover, at least one of the said opposing driving torque  $C_M$  and braking torque  $C_F$  is active on the said cover, such that the angle  $\alpha_0$  is within the angular range  $\alpha$  varying from  $60^\circ$  to  $160^\circ$ .

3. Packaging according to claim 2 in which the said hinge (1) introduces sufficiently large friction forces between the said first hinge portion (2) and the second hinge portion (3), so that the said cover can be  
5 in an equilibrium position for an opening angle  $\alpha$  varying from approximately  $\alpha_0 - \beta$  to  $\alpha_0 + \beta$ , so that angular equilibrium is possible with a range equal to  $2\beta$ , typically between  $30^\circ$  and  $90^\circ$ , where  $\beta$  is larger when the said friction forces are higher.

10 4. Packaging according to claim 1 in which the said driving torque  $C_M = M(\alpha)$  and braking torque  $C_F = F(\alpha)$  are chosen firstly such that the relations  $C_M > 0$  and  $C_F = 0$  are satisfied for an opening angle  $\alpha$  varying from  $0^\circ$  to  $\alpha_1$ , the said cover then tending to open under the  
15 action of the said driving torque, and such that the relations  $C_M = 0$  and  $C_F > 0$  are satisfied for an opening angle  $\alpha$  greater than  $\alpha_2$  possibly as far as a stop position of the cover, the said cover then having a resistance to opening or possibly tending to close under  
20 the action of the braking torque, such that the angles  $\alpha_1$  and  $\alpha_2$  define the limits of an angular equilibrium range  $\alpha_1 - \alpha_2$  typically within the angular range  $60^\circ - 160^\circ$ , with the range  $\alpha_2 - \alpha_1$  equal to at least  $30^\circ$ .

25 5. Packaging according to claim 4 in which the said hinge (1) introduces sufficiently large friction forces between the said first hinge portion (2) and second hinge portion (3) so that the said cover has an

equilibrium position for an opening angle  $\alpha$  varying from approximately  $\alpha_1 - \beta$  to  $\alpha_2 + \beta$  so as to form an angular equilibrium range typically between 30 and 90°, where the angle  $\beta$  is larger when the said friction forces are  
5 higher.

6. Packaging according to any one of claims 1 to 5, in which the said driving means (4) and / or braking means (5) form annular or tubular elements (40, 50), typically in the form of rings, cooperating on the inside  
10 with either a first hinge portion (2) or a second hinge portion (3) forming a central hinge pin (11) of these annular or tubular elements, and cooperating on the outside with the other hinge portion forming a tubular portion (12).

15 7. Packaging according to claim 6 in which the said driving means (4) and / or braking means (5) form cylindrical elements (41, 51) typically in the form of pins, cooperating with the first hinge portion (2) and second hinge portion (3) forming a central axis for these  
20 hinge portions.

8. Packaging according to any one of claims 1 to 7, in which the first hinge portion (2) and second hinge portion (3) comprise two parts, a right part (11D, 12D) and a left part (11G, 12G), and in which one of the  
25 driving means (4) or braking means (5) cooperates with one of the two parts, and the other means cooperates with the other part.

9. Packaging according to claim 8, in which each of the said driving means (4) and braking means (5)

forming the said cylindrical elements (41, 51), cooperates with the first and second hinge portions forming a central axis for these hinge portions acting as the right pins (41D, 51D) and the left pins (41G, 51G) to  
5 fix the said first and second hinge portions forming the right part (12D) and the left part (12G) of the said hinge (1).

10. Packaging according to any one of claims 7 to 9, in which the driving means (4) and / or the braking  
10 means (5) comprise an angular adjustment range (410, 510) in particular enabling modifications to the torques  $C_M$  and  $C_F$ .

11. Packaging according to any one of claims 1 to 10, in which the said driving means (4) and / or the said  
15 braking means (5) comprise one or more springs (44, 54) typically with helical turns in which the axis is the axis (10) of the said hinge, one of its two ends (440, 550) cooperating with one of the two portions of the hinge, the other end (441, 551) cooperating with the  
20 other portion of the hinge, so as to obtain the said driving torque  $C_M = M(\alpha)$  and braking torque  $C_F = F(\alpha)$ .

12. Packaging according to any one of claims 1 to 11, in which the said braking means (5) include axial cooperation between two non-cylindrical elements forming  
25 a friction element (56): a cam (560) typically forming a rigid internal element and a tubular element (561), typically made of an elastically and reversibly deformable material, with an internal profile facing the said cam chosen so as to obtain the said braking torque

$C_F = F(\alpha)$ , and in which one of the non-cylindrical elements (560, 561) cooperates with one of the two hinge portions (2, 3), the other element (561, 560) cooperating with the other hinge portion (3, 2).

5        13. Packaging according to any one of claims 1 to 12, in which each of the driving means (4) and the braking means (5) comprises two parts fixed in rotation, one part (42, 52) comprising a means (420, 520) of fixing it to one of the hinge portions (2) and the other part  
10 (43, 53) forming a means (430, 530) of fixing it to the other hinge portion (3).

14. Packaging according to claim 13, in which each means of fixing to one portion of the hinge is typically formed by an axial assembly of a male part and a female  
15 part belonging to the said fixing means and the said hinge, along the axis of the said hinge.

15. Packaging according to claim 14, in which the said male and female parts are typically grooved, with a number N of ribs or grooves (20, 30, 45, 55) for the male  
20 part cooperating with a number N of grooves or ribs (20, 30, 45, 55) for the female part, where N typically varies from 3 to 18.

16. Packaging according to any one of claims 1 to 15, composed of cases, make-up powder compacts, cream  
25 pots, perfume receptacles with hinge.

17. Packaging according to any one of claims 1 to 16, the said packaging forming a typically round or oval shaped case (6), in which the said clasp (9) and possibly the said pushbutton (90) are placed outside a so-called

prohibited area (71) of the said bottom (7), the said prohibited area (71) corresponding to a front and back part of the said case between the planes P1 and P2, parallel to the said plane P, and that surround the said  
5 hinge.

18. Packaging according to any one of claims 1 to 17, the said packaging forming a typically square or rectangular case, in which the said clasp, and possibly the said pushbutton (90) are placed on one side or a side  
10 wall (72) of the bottom (7) of the case (6).

19. Packaging according to any one of claims 1 to 17, comprising two clasps (9) or pushbuttons (90) placed symmetrically with respect to the said central plane P, the said two clasps (9) or pushbuttons (90) also forming  
15 manual areas for gripping the said packaging.

20. Process for manufacturing a packaging according to any one of claims 7 to 19, in which the so-called driving means (4) and braking means (5) act as right pins (41D, 51D) and left pins (41G, 51G) to fix the said first  
20 hinge portion (2) and second hinge portion (3) together, and after the said first and second hinge portions have been put into position, the so-called driving means (4) and braking means (5) are obtained and then assembled to the said first hinge portion (2) and second hinge portion  
25 (3), typically by axial click fitting at zero or almost zero stress, the opening angle  $\alpha$  of the cover being close to  $0^\circ$  during assembly of the so-called braking means (5) and the opening angle  $\alpha$  of the cover being close to  $90^\circ$  for the so-called driving means (4).

21. Process for manufacturing a packaging according to any one of claims 10 to 19, in which the so-called driving means (4) and braking means (5) act as first and second pins to fix the said first hinge portion (2) and second hinge portion (3) together, and after the said first hinge portion (2) and second hinge portion (3) have been put into position, the so-called driving means (4) and braking means (5) are obtained and then assembled to the said first hinge portion (2) and second hinge portion (3), typically by axial click fitting at zero or almost zero stress, the so-called driving means (4) and / or braking means (5) comprising an accessible fixing means (420, 430, 520, 530) at one end and comprising an angular adjustment means (410, 510) such that, after it has been assembled, the angle of the said accessible fixing means can be adjusted later, particularly by orientation of the said ribs and grooves (20, 30, 45, 55) enabling rotation with respect to each other, to obtain the so-called opposing driving torque  $C_M = M(\alpha)$  and braking torque  $C_F = F(\alpha)$ .